Round 1 of the Research to Operations (R20) Initiative Project

Funding Opportunity Number: NOAA-NWS-NWSPO-2015-2004117

Projects to begin 5/1/15

The NWS Research to Operations Initiative intends to expand and accelerate critical weather forecasting research into operations to address growing service demands, and increase the accuracy of weather forecasts through accelerated development and implementation of current global weather prediction models, improved data assimilation techniques, and improved software architecture and system engineering.

The overarching initiative objective is to build a Next Generation Global Prediction System (NGGPS) that will be the foundation for the operating forecast guidance system for the next several decades.

Projects specific to modeling research and development:

- Accelerating Development of NOAA's Next-Generation Global Coupled System for Week 3 and Week 4 Weather Prediction – George Mason University PI: James Kinter
- Developing Physics-oriented Diagnostic Tools for Model Evaluation and Improvement – University of Illinois PI: Zhuo Wang
- Investigation of Aerosol Effects on Weather Forecasts using NCEP Global Forecast System – SUNY Albany PI: Sarah Lu
- Integrating Unified Gravity Wave Physics into the Next Generation Global Prediction System – University of Colorado/CIRES PI: Dr. Timothy Fuller-Rowell
- Development of Advanced Data Assimilation Techniques for Improved use of Satellite-Derived Atmospheric Motion Vectors – University of Wisconsin/CIMSS PI: James Jung
- Evaluating the Impact of Cloud-Aerosol-Precipitation Interaction (CAPI) Schemes on Rainfall Forecasts in the NGGPS – University of Maryland PI: Zhanqing Li
- Advancing Storm-Scale Forecasts over Nested Domains for High-Impact Weather – Pennsylvania State University PI: David Stensrud
- Sub-seasonal Prediction over the Western US – University of Washington PI: Clifford Mass
- Improving Global and Hurricane Predictions by Using Minimum-Cost Large Ensembles in GFS 4DEnVar Hybrid Data Assimilation System – University of Oklahoma/CIMMS PI: Xuguang Wang
- Enhancing NCEP-GFS Forecasts via Assimilating Satellite Soil Moisture and Snow Observations – University of Maryland PI: Dr. Christopher Hain
- Development and Testing of a Multi-Model Ensemble Prediction System for Sub-Monthly Forecasts – Columbia University PI: Dr. Andrew Robertson
- Calibration and Evaluation of GEFS Ensemble Forecasts at Weeks 2-4 – SUNY Stony Brook PI: Ping Liu
- Improved Tropical Cyclone Initialization for NCEP Operations through Direct Assimilation of Storm Information – University of Maryland PI: Daryl Kleist
- An Operational Hybrid 3DVar/EnKF Ocean Assimilation System at NCEP – University of Maryland PI: Steve Penny

Projects in collaboration with NOAA Testbeds:

- Validation of Significant Weather Features and Processes in Operational Models Using a Cyclone Relative Approach – SUNY Stony Brook PI: Dr. Brian Colle. Testbeds: DTC HMT and AWT
- Test and Evaluation of Rapid Post-Processing and Information Extraction from Large Convection Allowing Ensembles Applied to 0-3 hour Tornado Outlooks – University of Oklahoma/CIMMS PI: Dr. James Correia Testbed: HWT
- Incorporation of Near Real-Time Suomi NPP Green Vegetation Fraction and Land Surface Temperature Data into the NCEP Land Modeling Suite- NESDIS/STAR and JCSDA PI: Csiszar
- Application of a Hybrid Dynamical-Statistical Model for Week 3 to 4 Forecast of Atlantic/Pacific Tropical Storm and Hurricane Activities – CPC and the Climate Testbed PI: Jae-Kyung Schemm
- Improvement of Convective/Severe Weather Prediction Through an Integrative Analysis of WRF Simulations and NEXRAD/GOES Observations over the CONUS- University of N Dakota PI: Dr. Xiquan Dong Testbed: HWT
- Exploitation of Ensemble Prediction System Information in Support of Atlantic Tropical Cyclogenesis Prediction – SUNY Albany PI: Dr. Christopher Thorncroft Testbed: JHT
- Data Mining of High-Resolution Storm-Scale Data Sets- University of Oklahoma/CIMMS PI: Travis Smith Testbed: HWT
- An Investigation of the Skill of Week Two Extreme Temperature and Precipitation Forecasts – SUNY Albany   PI: Dr. Lance Bosart Testbed: HMT
- Information Extraction and Verification of Numerical Weather Prediction for Severe Weather Forecasting University of Oklahoma/CIMMS PI: Israel Jirak Testbed: HWT